(12) UK Patent Application (19) GB (11) 2 318 279 (13) A

(43) Date of A Publication 22.04.1998

(21) Application No 9621590.0

(22) Date of Filing 16.10.1996

(71) Applicant(s)
Emaco Limited

(Incorporated in the United Kingdom)

Oakley Road, LUTON, Bedfordshire, LU4 9QQ, United Kingdom

(72) Inventor(s)
Michael Green
Tord Kyhlstedt
Stuart Banham

(74) Agent and/or Address for Service
Withers & Rogers
4 Dyer's Buildings, Holborn, LONDON, EC1N 2JT, United Kingdom

(51) INT CL[6]
A47L 9/32 // B25G 3/38

(52) UK CL (Edition P)
A4F FD12 FEF11 FSCW
B4K KJD

(56) Documents Cited
GB 2290462 A GB 2144626 A GB 1204108 A
GB 0689098 A

(58) Field of Search
UK CL (Edition O) A4F , B4K KJB KJC KJD
INT CL[6] A47L 5/24 5/28 9/32 11/40 , B25G 3/38

(54) Suction cleaner handle

(57) The upper portion (4) of an upright suction cleaner comprises a handle (6) that is pivotally attached by a ball joint connection (9). The handle (6) can be swivelled and tilted about axes V1 and H2 and secured in position by the locking mechanism (10). The handle (6) may be in the form of a rigid loop (8) or a 'T' bar element (not shown).

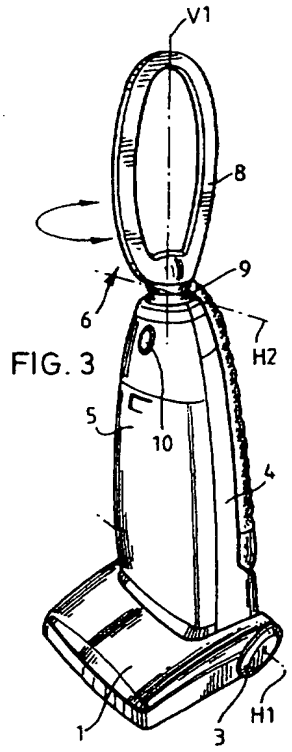


FIG. 3

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The print reflects an assignment of the application under the provisions of Section 30 of the Patents Act 1977.

GB 2 318 279 A

FIG. 1

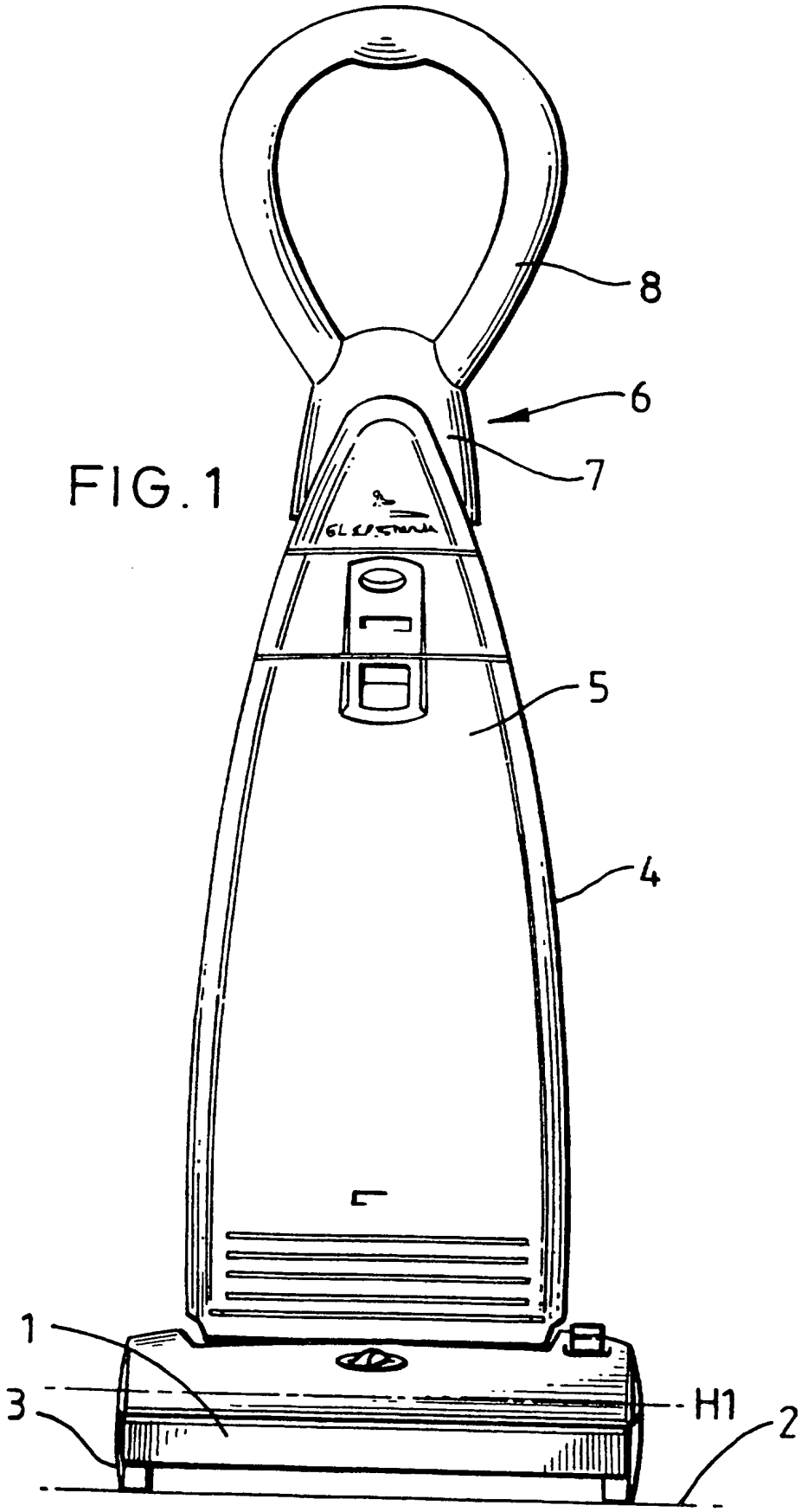


FIG. 2

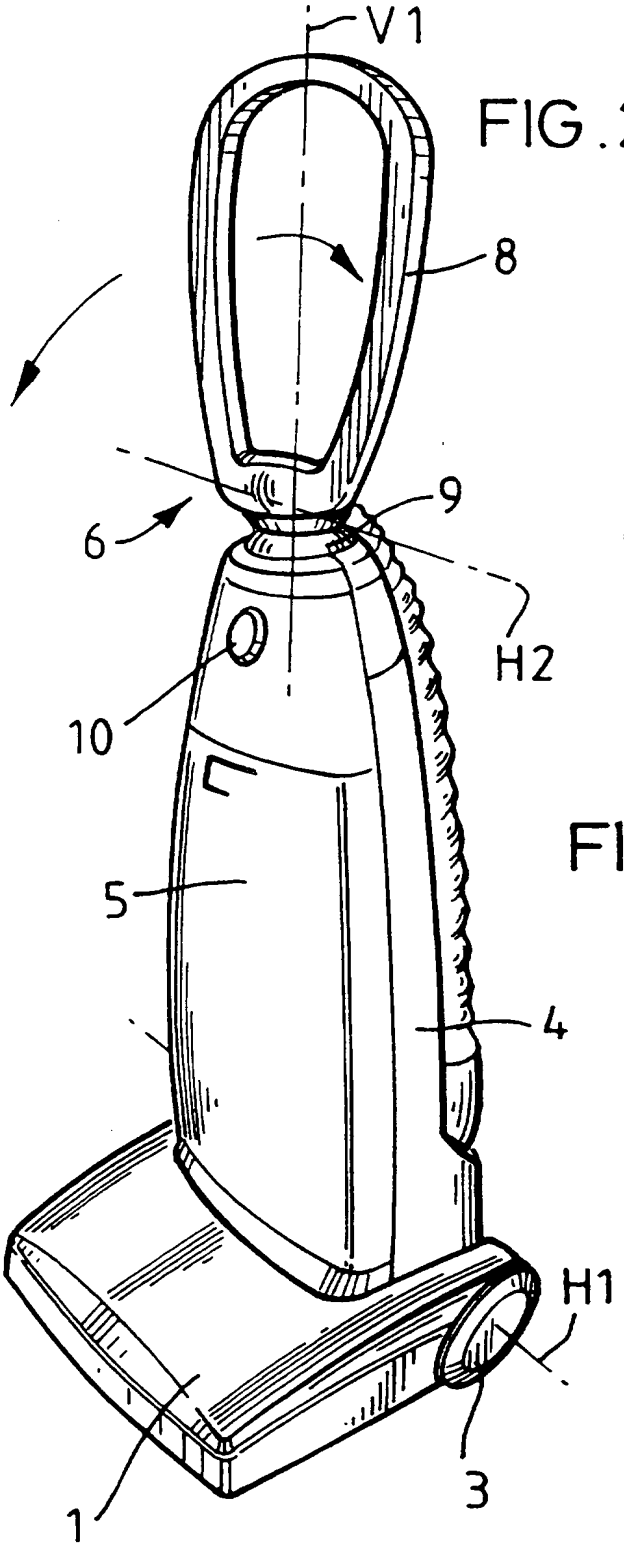


FIG. 3

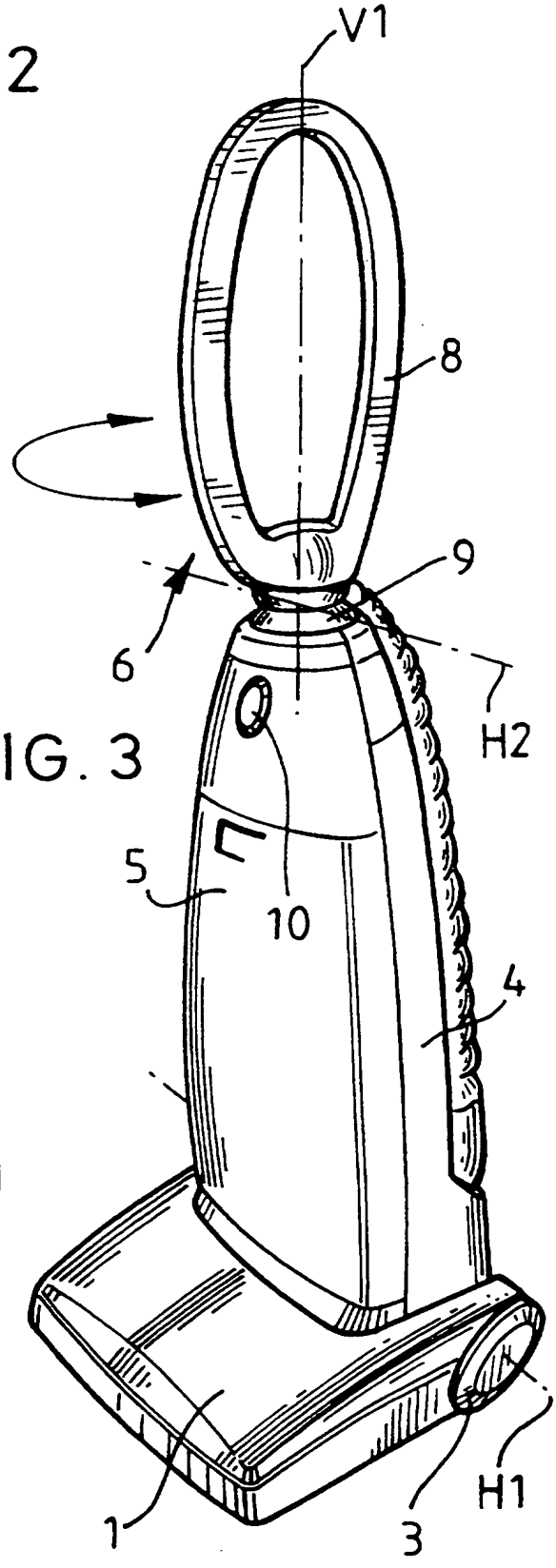


FIG. 4

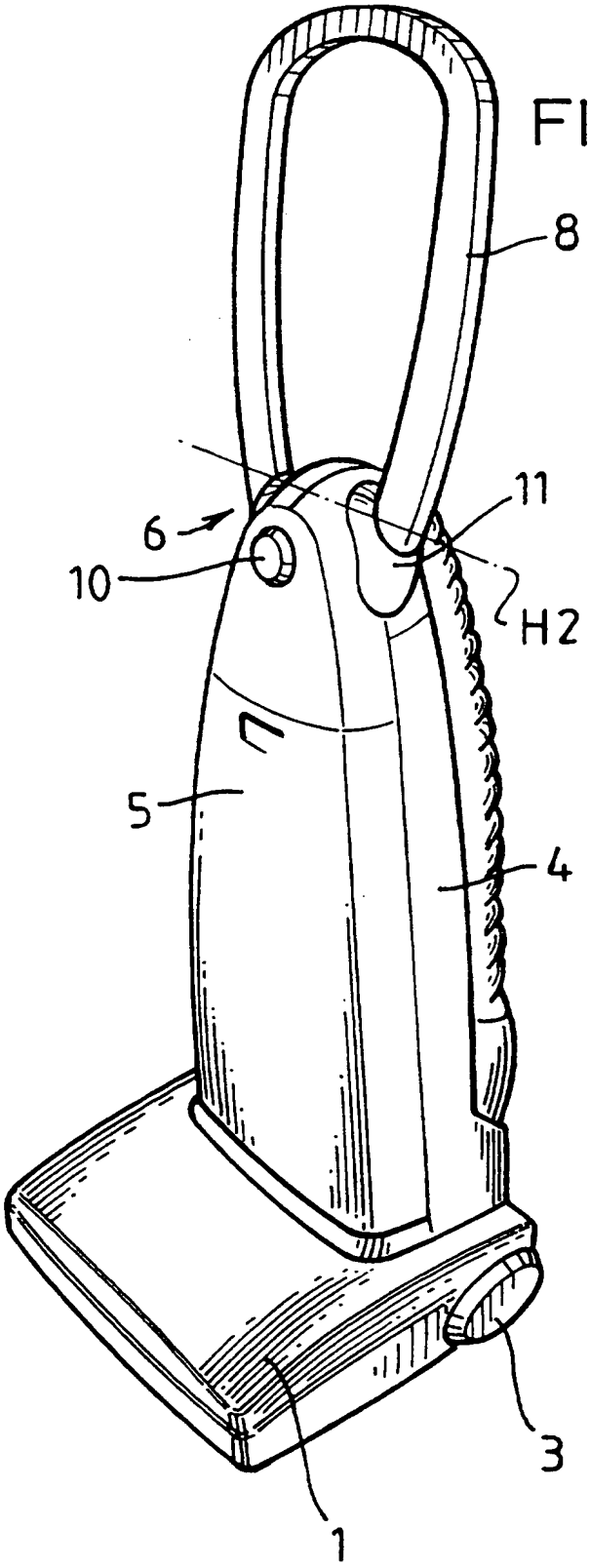


FIG. 5

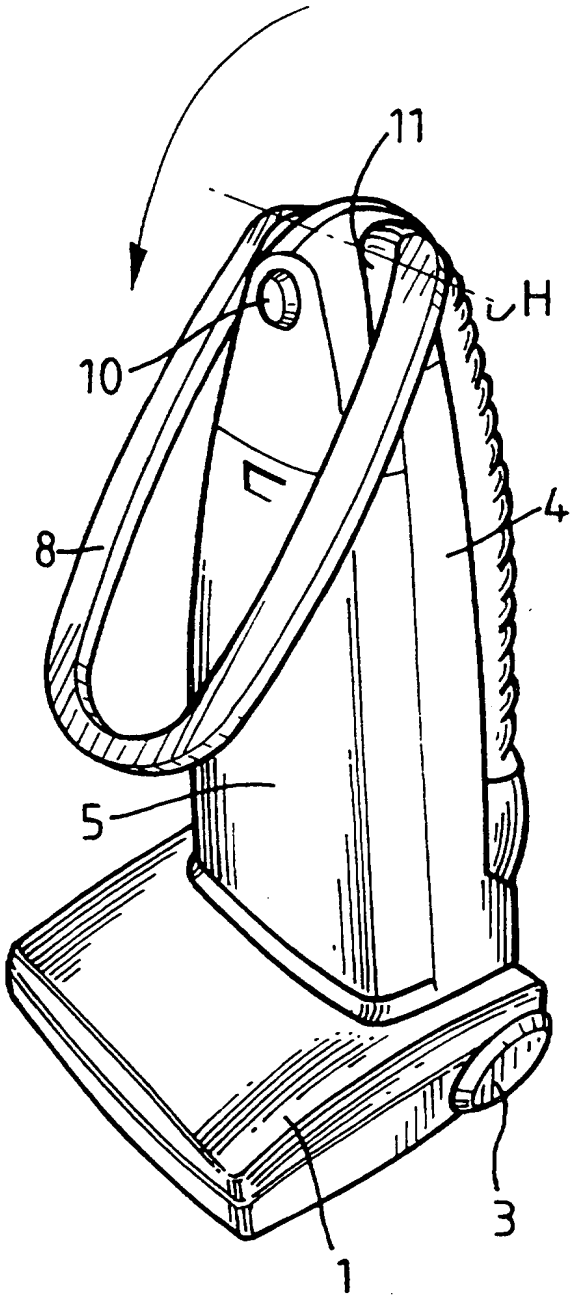
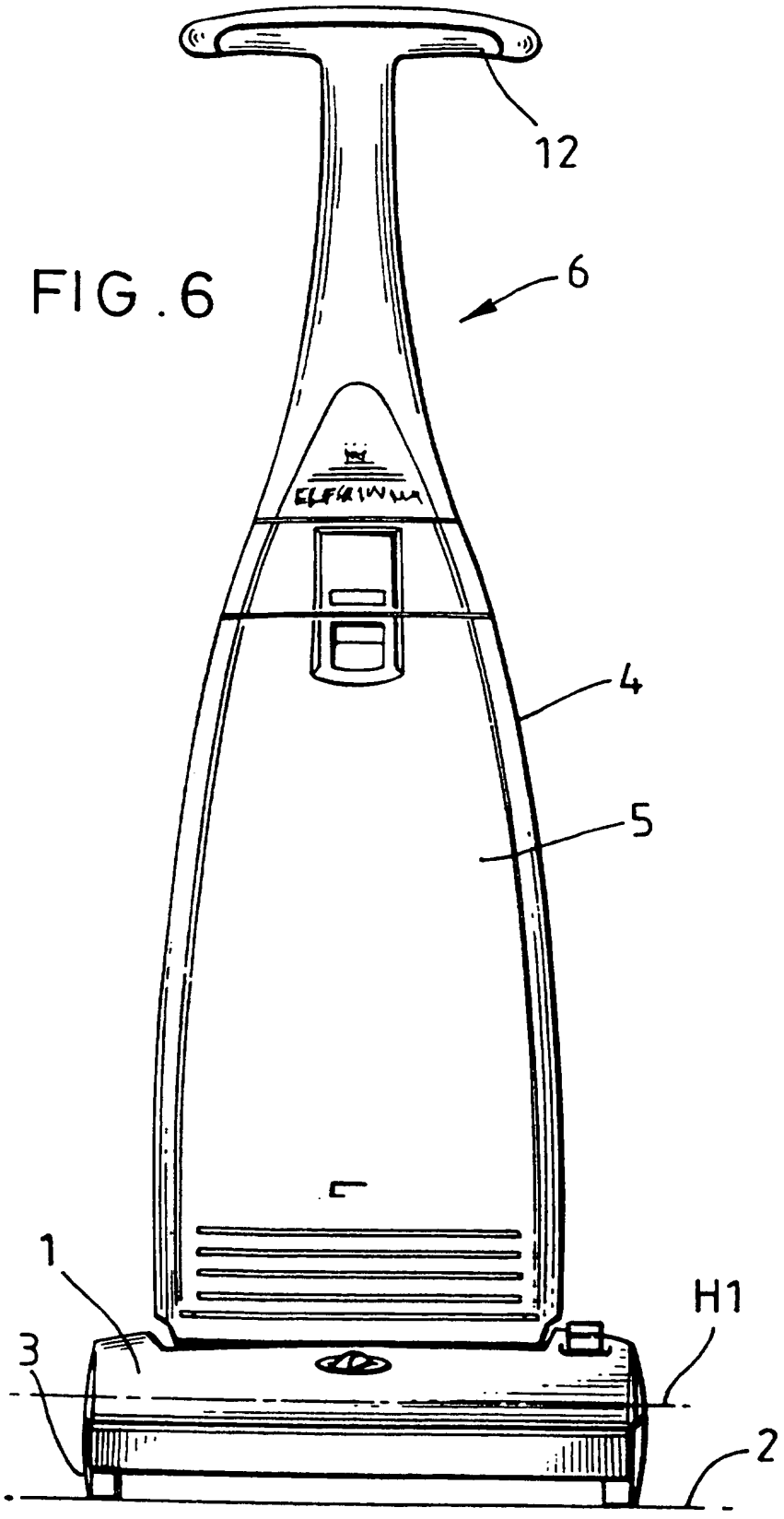


FIG.6



2318279

SUCTION CLEANERS

This invention relates to suction cleaners, and in particular to upright-type suction cleaners including a base portion having a downwardly facing collection mouth, and an upper portion mounted on the base portion for pivotal movement in a substantial vertical plane about the base portion between an upright position and an operative position.

Conventional suction cleaners of this type include a generally cylindrical-section handle extending from the upper portion which a user grasps with one hand in order to move the upper portion between the upright position and the operative position, and, when the upper part is in its operative position, to push and pull the base along a surface to be cleaned. In normal use, the suction cleaner is pushed and pulled along the surface in straight lines or strips. When the surface is obstructed by an object within a room, such as a sofa, it is normal to push and pull the suction cleaner across the front of the sofa. Then the suction cleaner is moved into the centre of the room where it can be turned through ninety degrees before being moved backwards and forwards along the side of the sofa.

In the above example, it is awkward and troublesome to move the cleaner into the middle of a room before turning it through ninety degrees. The difficulty with such known cleaners is because the only way of changing

the direction of movement is to swing the upper portion around the base portion, thereby pivoting the cleaner on its wheels beneath the base portion.

If it is desired to clean a floor around a circular item of furniture, it is necessary to repeatedly move the cleaner back and forth in straight paths which are tangential to the item until that region of the floor is clean. The same difficulties as are explained above are present, leading to the user becoming tired.

According to the present invention, a suction cleaner comprises a base portion having a downwardly facing collection mouth through which material can be collected from a surface to be cleaned; an upper portion mounted on the base portion for pivotal movement in a substantially vertical plane relative to the base portion between a generally upright position and an operative position angularly displaced from the upright position, the upper portion including a handle characterised in that the handle includes a handle element extending generally outwardly relative to said substantially vertical plane.

It is not possible to grip the handle of a conventional cleaner well, but the present invention gives much better grip to enable superior control of the cleaner. In some cases, it will be possible to use both hands to manoeuvre the cleaner in order to improve control, especially for elderly people.

Embodiments of the invention are described below by way of example with reference to the accompanying drawings

in which:

Figure 1 shows a suction cleaner according to a first embodiment in which the handle includes a fixed loop;

Figure 2 shows a suction cleaner according to a second embodiment in which the loop is swivelable about the axis of the upper portion, and is pivotable about a horizontal axis;

Figure 3 shows the loop of the suction cleaner of Figure 2 in a second position;

Figure 4 shows a suction cleaner according to a third embodiment in which the loop is pivotable about a horizontal axis;

Figure 5 shows the suction cleaner of Figure 4 in which the loop is folded down against the upper portion of the cleaner; and

Figure 6 shows a suction cleaner according to a fourth embodiment in which the handle includes a T-bar.

Referring to Figure 1, a suction cleaner includes a base portion 1 which rests on a floor 2. The base portion 1 includes a downwardly facing collection mouth (not shown) which sucks dust and dirt from the floor 2. The base portion is supported above the floor by wheels 3. An upper portion 4 is mounted on the base portion 1 and is pivotable about a horizontal axis H1 to move in a substantially vertical plane relative to the base portion 1. The upper portion 4 is shown in Figure 1 in an upright position normally used for storing the machine. The upper portion 4 may be reclined by pivoting it about the

horizontal axis H1 so that it is at a height which is appropriate for a user.

The upper portion 4 houses a dust bag (not shown) which can be accessed through a sealed door 5 in the front of the upper portion 4. The upper portion 4 also includes a handle 6 which is grasped by a user when cleaning the floor 2. The handle 6 includes a hub 7 which is attached to, or forms part of, the rest of the upper portion 4, and a rigid loop 8 which is attached at both ends to the hub 7.

In use, because the loop 8 extends generally outwardly relative to the vertical plane in which the upper portion 4 moves, a user has a much stronger grip on the machine, and is able to manoeuvre the machine much more easily than conventional machines. The user has better control. In addition, two hands may be used, a feature which is particularly advantageous for elderly or disabled people.

Referring to Figures 2 and 3, a second embodiment of the suction cleaner is shown which differs from the first embodiment only in that the loop 8 may be swivelled about a first axis V1 passing through the length of the upper portion 4 and may be folded forwards. The loop 8 is attached to the rest of the upper portion 4 by a ball joint connection 9. A locking mechanism 10 latches the loop 8 in any angular position swivelled about the first axis V1, or in any of a number of discrete angular positions. The loop 8 is rotatable about this first axis

V1 and, without the latching mechanism, is able to rotate freely. In addition, the ball joint connection enables the loop 8 to be folded forwards about a second horizontal axis H2 passing through the ball joint connection 9 against the door 5 for compact storage. The locking mechanism 10 is also able to lock the loop 8 in any angular position about the second, horizontal, axis H2. Thus, in use, the loop 8 does not need to be aligned exactly with the rest of the upper portion 4. There are some weight distribution advantages in tilting the loop 8 backwards slightly towards a user relative to the upper portion 4, since the upper portion will not then be tilted backwards so far as would be necessary with a conventional cleaner, and the suction cleaner will feel lighter.

Referring to Figures 4 and 5, a third embodiment of the suction cleaner is shown which differs from the first embodiment in that the loop 8 pivots only about a second, horizontal, axis H2 through the upper portion 4 of the suction cleaner. A simple pivoting connection 11 connects the loop 8 to the rest of the upper portion 4. The loop 8 is shown in its extended position in Figure 4, and in its folded position in Figure 5. A locking mechanism 10 locks the handle 6 in any position about the second, horizontal, axis H2 or in any of a number of discrete positions. As described above, the suction cleaner can be used when the loop 8 is displaced from its position in-line with the rest of the upper portion 4.

Referring to Figure 6, a fourth embodiment of the

suction cleaner differs from the first embodiment in that the handle 6 does not include a loop, but a fixed T-bar 12. The T-bar 12 has similar advantages to the first embodiment.

The fourth embodiment shows that the key feature of this invention is that the handle 6 includes a handle element 8,12 extending generally outwardly relative to the substantially vertical plane in which the upper portion 4 moves.

CLAIMS

1. A suction cleaner comprising:

a base portion having a downwardly facing collection mouth through which material can be collected from a surface to be cleaned;

an upper portion mounted on the base portion for pivotal movement in a substantially vertical plane relative to the base portion between a generally upright position and an operative position angularly displaced from the upright position, the upper portion including a handle

characterised in that the handle includes a handle element extending generally outwardly relative to said substantially vertical plane.

2. A suction cleaner according to claim 1, wherein the handle element is constituted by a loop.

3. A suction cleaner according to claim 1, wherein the handle element is constituted by at least a part of a loop.

4. A suction cleaner according to claim 1, wherein the handle element is constituted by a T-bar.

5. A suction cleaner according to any preceding claim, wherein the handle element is pivotable about a first axis

which passes through the length of the upper portion.

6. A suction cleaner according to claim 5, characterised by a latching means for latching the handle element at least in a position disposed generally transversely of said vertical plane.

7. A suction cleaner according to any preceding claim characterised in that the handle element is pivotable about a second axis which passes through the upper portion of the handle, and is disposed transversely of said vertical plane.

8. A suction cleaner according to claim 7, characterised in that the second axis is disposed at the lower end of the handle such that the handle element can be folded against the upper portion for storage.

9. A suction cleaner according to claim 7 or claim 8, characterised by means for locking the handle element in its operative position.

10. A suction cleaner according to claim 9, wherein the locking means locks the handle element in a plurality of further positions displaced from the operative position.

11. A suction cleaner according to any one of the preceding claims, characterised in that the handle element

extends perpendicularly outwardly from the substantially vertical plane.

The Patent Office

10

Application No: GB 9621590.0 **Examiner:** Justin Black
Claims searched: 1 - 11 **Date of search:** 13 December 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): A4F. B4K (KJB, KJC, KJD)

Int Cl (Ed.6): A47L (5/24, 5/28, 9/32, 11/40). B25G (3/38).

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X, Y	GB 1204108	(ELECTROLUX LIMITED). See figures 1, 3 and 6.	X: 1, 4, 11. Y: 2, 3.
Y	GB 2290462 A	(DAEWOO). See figure 6.	3.
Y	GB 2144626 A	(MCGRAW - EDISON). See figure 1.	3.
Y	GB 689098	(FILLERY). See figure 6.	2, 3.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.